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CHAPTER XXV. APPLIED (OR ECONOMIC) GEOGRAPHY.

INTRODUCTION.

The enormous expansion of American, English, and German international trade; the acquisition of vast transoceanic possessions, especially on the part of Great Britain; the sleepless instinct of gain that opens up markets in the most remote countries for the products of labor in farm and factory, quickened by ever increasing speed through the aid of mechanical power; the annihilation of distance by contrivances never dreamed of a few generations ago, all these factors have combined to change both matter and methods of the study of geography in the schools, and to give this study a new character.

Time was when a mere description of the earth's surface, and memorizing of names of States, cities, mountains, lakes, and rivers constituted the sum total of what the child of the elementary school derived from the study of geography. In secondary schools the study was rarely more than a mere foil to history.

Then followed the wonderful development of the natural sciences during the middle of the nineteenth century, which gave a new impetus to geography. It became the common focus of many of the natural sciences, and under the name of "nature study" the subject of geography almost lost its identity, at least its former vassalage to history changed to servitude to the new trend of thought. Physical geography, or rather topography, was considered the only part of geography worthy of study, and to some extent it is so still.

But recent historical events have called for a change louder than the wise counsel of farseeing men, who had from time to time urged the advisability of emphasizing the human element more than was done. To-day it is made clear to us that geography deserves to be more than a handmaid of history on the one hand, or a mere drudge in the service of nature study on the other hand. It demands a place and dignity of its own, combining the objects of the two methods, the historical and the scientific, and besides, offering to the student a useful agency in bringing him in contact with commercial elements. Advocates in Europe and America eloquently press the claims of geography to a separate and independent position in the curricula of schools of every kind. But among the educational institutions which call for a new departure in the teaching of geography, the commercial and other technical schools in Europe are the most insistent, as will be seen from a report of Prof. A. J. Herbertson, of Edinburgh, Scotland, reprinted in this chapter.

Before the paper of this eminent authority is presented, it seems proper to show that in the United States the necessity of a change has also been foreseen.

OPINIONS OF EDUCATORS IN THE UNITED STATES.

The three special reports issued by authority of the National Educational Association: The report of the committee of ten on secondary school studies, dated 1893; the report of the committee of fifteen on elementary studies, dated 1895; and the report

of the committee of twelve on rural schools, dated 1897, may be quoted as clearly setting forth the attitude of teachers in this country on the subject. Of course, it is well understood that there have been isolated expressions from time to time pointing out the faulty methods in teaching geography, but the general awakening to the need of a change in the character and aims of that study is of rather recent occurrence. While as yet few chairs for the study of geography have been established in higher institutions of learning in this country and in England, the universities, and the polytechnic and commercial schools of college and university rank in France, Germany, Austria, and Switzerland have fostered the study most assiduously, so that when a new departure for the study of geography was necessitated by historical events and the awakened commercial spirit of the times, German and French scholars aided the movement generously.¹ In continental Europe the commercial schools have special atlases differing from those of other schools in paying particular attention to facts of commercial importance.

The committee on secondary school studies, mentioned before, discussed geography in a subcommittee, the report of which contains the following statement regarding the order of treatment based on the students' mental processes. It will be seen that this document emphasizes chiefly physical geography.

The conference offer, by way of suggestion, the following scheme. The appended remarks bear in part upon the educational philosophy entertained, in part upon the purpose of the work, and part upon the methods of execution. Reduced to a sentence the scheme is, first, see; next, reproduce; then study the productions of others; and, meanwhile, ponder and reason on all.

1. *Observational geography.*—In the judgment of the conference, observation should go before all other forms of geographical study and prepare the way for them; its object being (1) to develop the power and habit of geographic observation, (2) to give the pupils true and vivid basal ideas, and (3) to arouse a spirit of inquiry and a thirst for geographical knowledge. This work of observation should begin with those features that lie immediately about the pupils and so fall easily within the reach of their direct study and ready comprehension. In rural districts, the natural features of the surface will obviously form a large part of the study; while in cities, the artificial features must largely take the place of these. In the one instance, natural geography, as seen in the forms of the land, the hills, valleys, plains, meadows, divides, streams, lakes, etc., will predominate; while in the other artificial or humanistic geography will receive leading attention, as streets, railways, wharves, harbors, parks, plats, wards, etc.; but something of both these groups of subjects may be found and utilized in both localities. Neither should be neglected, for the pupils need not only to acquire clear ideas of the things by which they are chiefly surrounded but type ideas of the things which characterize other localities and of which they need to form correct ideas without being able to see them. Observation, however, should not be confined simply to the passive fixed features by which pupils are surrounded. They should observe the agencies that produce surface changes, such as winds, rains, floods, thawing, freezing, cultivation, etc. The temporary streams that follow heavy rains represent on a small scale many of the natural processes by which surface features are produced. From these immediate agencies, the observations should extend to the phenomena of the weather and the climate, such as temperature, winds, clouds, seasons, etc. As a step toward the understanding of mathematical geography, so called, the children should be led to observe the shifting of the sun north and south with the seasons and to measure the amount of this by the length of shadows at noonday in the different months of the year. They should compare these by means of a record kept for the purpose. In like manner, they should observe the movements of the stars and other heavenly bodies. As a step toward the study of the distribution of plants and animals and an insight into their dependence upon temperature, soil, food, etc., the pupils should be encouraged to observe the differences of plants on uplands, lowlands, marshes, etc., and upon sandy, clayey, gravelly, or stony ground, and to note the habitual dispersal of animals and insects in the neighborhood, and also their relations to each other, as in forming or frequenting forests, prairies, meadows, etc. As a step toward the study of the human elements in geography, observations should be made upon the population and its distribution; upon home occupations and productions; upon local political boundaries, as

¹ See also Chapter XXX of the Annual Report of the Commissioner of Education for 1896-97.

wards, school districts, city or town limits, etc.; and upon the location of cities, villages, railways, canals, etc. Thus, by a little ingenuity and industry, a large part of the features that make up the substance of geography in the large sense may be found illustrated close at home, and, if suitably studied, the basis may be laid for clear conceptions of those features which lie beyond the range of the child's observation.

Observation should not only begin the work in geography but should continue throughout the entire course and beyond. If scholars are not educated so as to continually observe geographic features and note their significance whenever they are brought in contact with them, whether during school days or afterwards, the school work fails of its most important possibilities. The pupils' first observational work is necessarily of the simpler and more superficial kind. As knowledge and insight increase, they should see more and more of the geographic phenomena that come before them and see deeper and deeper into their significance and receive increasing pleasure and profit from them. To this end, every opportunity for observational work in geography should be eagerly embraced. Excursions for the special purpose should be made as frequently as practicable, formally or informally, in school hours and out of school hours, by classes and by individuals. Advantage should be taken of incidental excursions in which the class or any of its members participate. The little trips and longer travels of members of the class should be taken advantage of. Late in the course, special studies of certain geographic features may be taken up with success and profit.

2. *Representative geography.*—Immediately after the making of observations should come their reproduction in the form of descriptions, sketches, maps, models, etc. The instruction of the teacher falls far short of its highest efficiency if the early work is merely observational and receptive. The great end of education is to create productive ability. One important form of this is representative production. Besides having value in itself, the description of features that have been seen and their representation by sketches, maps, or models reacts upon the observational work and induces a clearness, sharpness, and definiteness that it would not otherwise be likely to take. Not only this, but it leads the scholars to realize what maps, descriptions, etc., really mean. By this means pupils are lead up naturally to an ability to read with vividness, ease, and full understanding the maps and descriptions which constitute the medium of the larger part of their later studies, and such ability to read is of supreme importance in all subsequent work.

3. *Derivative or descriptive geography.*—When pupils have gained true and vivid basal ideas by observation and have by reproducing these acquired a realistic sense of the meaning of maps and an ability to read them in the full and proper sense of the term, they are prepared to pass on to a formal study of descriptive geography. In this the observational and representative work of others than themselves is made the basis of study. The pupils are not now studying the earth's surface, but "a description of the earth's surface." The work is not direct and immediate, but derivative and secondary. The pupils can not carry their own observations over more than a very small fraction of the earth's surface, and their work upon even this small portion must in the nature of the case be very imperfect. Their great dependence must therefore be upon the work of others, the work of geographical experts, and hence descriptive geography must embrace much the largest portion of their attention. The common mistake is that it embraces too nearly all of it, and the observational and reproductive efforts which are necessary to give the study of descriptions its greatest serviceability are neglected. These should be continued throughout the course running parallel with the descriptive study and supplementing and vivifying it.

4. *Rational geography.*—It has already been urged that the pupils should be induced to observe changes and processes as well as the simple passive facts of geography, and that there should thereby be laid the foundation for an understanding of the origin, the development, and the future history of geographic features. This is the introduction of rational geography as distinguished from the mere noting and memorizing of facts. This phase of the subject, which leads the pupils into the reason of things, should be assiduously cultivated, for it is the soul of the science. It should, however, be carefully adapted to the capabilities of the pupils, particularly in the earlier stages of the study. They should not be forced beyond their capacity to comprehend the nature of the agencies that have rendered geography what it is. On the other hand, there is an equal danger of underestimating the capacities of pupils to see into the reasons for natural operations. It is as dangerous to allow their capacities to lie undeveloped as it is to overload them with reasonings they can not understand and to force them to carry these in a mere verbal form by an effort of memory. The reasonings should be such as they can follow understandingly if not work out themselves. If they merely commit them to memory they

are as dead as other things simply memorized and lose entirely the rational element. It may not be wholly without value in some cases to give to children a statement of the causes of phenomena even though they are unable to understand the methods of their operation, but it should be clearly understood that this is not teaching the scholars to reason concerning phenomena, or even to follow reasonings concerning phenomena, but merely to memorize the reasons of phenomena.

It is not recommended that rational geography be dissociated from observational and descriptive geography, but rather, on the contrary, that it be intimately connected with these and that it be introduced so as to give them life and significance. To do this skill and discretion must be used respecting the way in which the rational element is introduced and the extent to which it is carried.

It will be noticed that the committee proposing the foregoing mode of treatment does not lay the chief stress on the political, ethnographical, and commercial features, but mainly on physical geography as the groundwork of the study. President Charles W. Eliot, the chairman of the committee of ten, thus concludes his comments upon the report of the subcommittee:

Their conception of physiography is a very comprehensive one. In short, they recommend a study of physical geography which would embrace in its scope the elements of half a dozen natural sciences, and would bind together in one sheaf the various gleanings which the pupils would have gathered from widely separated fields. There can be no doubt that the study would be interesting, informing, and developing, or that it would be difficult and in every sense substantial.

The committee of fifteen on elementary studies, appointed by the same association in 1894, and reporting in 1895, evidently viewed the subject from a different standpoint as will be seen from the following quotation of the report on correlation of studies:

Geography has preserved the comprehensiveness of meaning [it had in the Middle Ages] as a branch of the study in the elementary schools down to the present day. After arithmetic, which treats of the abstract or general conditions of material existence, comes geography with a practical study of man's material habitat and its relations to him. It is not a simple science by itself, like botany or geology or astronomy, but a collection of sciences levied upon to describe the earth as the dwelling place of man and to explain something of its more prominent features. About one-fourth of the material relates strictly to the geography, about one-half to the inhabitants, their manners, customs, institutions, industries, productions, and the remaining one-fourth to items drawn from the sciences of mineralogy, meteorology, botany, zoology, and astronomy. This predominance of the human feature in a study ostensibly relating to physical nature your committee considers necessary and entirely justifiable. The child commences with what is nearest to his interests, and proceeds gradually toward what is remote and to be studied for its own sake. It is, therefore, a mistake to suppose that the first phase of geography presented to the child should be the process of continent formation. He must begin with the natural differences of climate and lands and waters and obstacles that separate peoples, and study the methods by which man strives to equalize or overcome these differences by industry and commerce, to unite all places and all people, and make it possible for each to share in the productions of all. The industrial and commercial idea is, therefore, the first central idea in the study of geography in the elementary schools. It leads directly to the natural elements of difference in climate, soil, and productions, and also to those in race, religion, political status, and occupations of the inhabitants, with a view to explain the grounds and reasons for this counter process of civilization, which struggles to overcome the differences. Next comes the deeper inquiry into the process of continent formation, the physical struggle between the process of upheaving or upbuilding of continents and that of their obliteration by air and water; the explanation of the mountains, valleys, and plains, the islands, volcanic action, the winds, the rain distribution. But the study of cities, their location, the purposes they serve as collecting, manufacturing, and distributing centers, leads most directly to the immediate purpose of geography in the elementary school. From this beginning, and holding to it as a permanent interest, the inquiry into causes and conditions proceeds concentrically to the sources of the raw materials, the methods of their production and the climatic, geologic, and other reasons that explain their location and their growth.

In recent years, especially through the scientific study of physical geography, the processes that go to the formation of climate, soil, and general configuration of land

masses have been accurately determined, and the methods of teaching so simplified that it is possible to lead out from the central idea mentioned to the physical explanations of the elements of geographical difference quite early in the course of study. Setting out from the idea of the use made of the earth by civilization, the pupil in the fifth and sixth years of his schooling (at the age of eleven or twelve) may extend his inquiries quite profitably as far as the physical explanations of landscapes and climates. In the seventh and eighth years of school much more may be done in this direction. But it is believed that the distinctively human interest connected with geography in the first years of its study should not yield to the purely scientific one of physical processes until the pupil has taken up the study of history.

The educational value of geography, as it is and has been in elementary schools, is obviously very great. It makes possible something like accuracy in the picturing of distant places and events and removes a large tract of mere superstition from the mind. In the days of newspaper reading one's stock of geographical information is in constant requisition. A war on the opposite side of the globe is followed with more interest in this year than a war near our own borders before the era of the telegraph. The general knowledge of the locations and boundaries of nations, of their status in civilization and their natural advantages for contributing to the world market, is of great use to the citizen in forming correct ideas from his daily reading.

The educational value of geography is even more apparent if we admit the claims of those who argue that the present epoch is the beginning of an era in which public opinion is organized into a ruling force by the agency of periodicals and books. Certainly neither the newspaper nor the book can influence an illiterate people; they can do little to form opinions where the readers have no knowledge of geography.

As to the psychological value of geography little need be said. It exercises in manifold ways the memory of forms and the imagination; it brings into exercise the thinking power in tracing back toward unity the various series of causes. What educative value there is in geology, meteorology, zoology, ethnology, economics, history, and politics is to be found in the more profound study of geography, and, to a proportionate extent, in the study of its merest elements.

Your committee is of the opinion that there has been a vast improvement in the methods of instruction in this branch in recent years, due in large measure to the geographical societies of this and other countries. At first there prevailed what might be named sailor geography. The pupil was compelled to memorize all the capes and headlands, bays and harbors, mouths of rivers, islands, sounds, and straits around the world. He enlivened this to some extent by brief mention of the curiosities and oddities in the way of cataracts, water gaps, caves, strange animals, public buildings, picturesque costumes, national exaggerations, and such matters as would furnish good themes for sailors' yarns. Little or nothing was taught to give unity to the isolated details furnished in endless number. It was an improvement on this when the method of memorizing capital cities and political boundaries succeeded. With this came the era of map drawing. The study of watersheds and commercial routes, of industrial productions and centers of manufacture and commerce, has been adopted in the better class of schools. Instruction in geography is growing better by the constant introduction of new devices to make plain and intelligible the determining influence of physical causes in producing the elements of difference and the counter process of industry and commerce by which each difference is rendered of use to the whole world and each locality made a participator in the productions of all.

Prof. Geo. P. Brown, of Bloomington, Ill., commenting on this utterance, makes the following remarks, which clearly set forth the distinction between the two former methods of treatment of the subject:

The doctrine of this section upon the educative value of geography and its relation to human life will be accepted by most teachers. The elementary school must study the earth as the home of man. This gives emphasis to the industrial and commercial features of the study. The teachings of the report are in substantial accord with those of the Herbartians. We study physical geography that we may know better our fellow-men and our relations to them. The relation of this branch to history on the one side and to science on the other is a notable example of that idea of correlation which would teach each subject in the light of the knowledge of all others to which it is naturally related. The social order combines geography, history, natural science, the industries, and the characteristics of the people into a very close unity. The Herbartians and all good teachers demand that this unity shall be recognized in the school. The demands that some are making to have the emphasis placed upon the nature element rather than upon the human element are not sanctioned by this report. Geography is in part a natural-science study and in part a sociological study.

Sociology and nature are so intimately related in it that much of the latter must be known in order to understand the former. The time has certainly come for expunging much of the "sailor geography" from our course of instruction.

The report of the committee of twelve on rural schools also comments on the study of geography as follows:

The committee of fifteen has already advanced the opinion that the industrial and commercial idea is the central idea in the study of geography in the elementary schools. It leads directly to the natural elements of difference in climate, soil, productions, races of men, religion, political status, and occupation of the inhabitants, and it explains how these differences have arisen in some measure through cosmic and geological influences. It should be the teacher's object to make the pupil understand, just as early as his growing capacity admits, the peculiarities of his habitat, leading him to study the land and water formations in his neighborhood, and giving him power to recognize in the visible landscape about him the invisible forces that worked in the past and still are at work in the present, molding these shapes and forms. On the basis of this knowledge of the elements of difference produced by nature in soil, climate, and configuration of the landscape, he should explain the grounds and reasons for the counter process of civilization which struggles to overcome these differences by bridging the rivers and tunneling the mountains, by using steamboat and railroad so as to unite each particular habitat with the rest of the world. He should see how man adapts to his needs the climate of each place by creating for himself a comfortable temperature, using for this purpose clothing and shelter, as well as fuels of wood and coal or derived from oils and gases to protect from cold; and, on the other hand, utilizing ice or power fans, and creating easy access to summer dwellings on the heights of mountains or at the seashore to mitigate the heat. He turns the soil into a laboratory, correcting its lacks and deficiencies by adding what is necessary to produce the crop which he desires. He naturalizes the useful plants and animals of all climes in his own habitat. It is evident that the details of the process by which differences of soil, climate, and production arise, important as these are, should not be allowed to occupy so much of the pupil's time that he neglects to study the counter process of industry and commerce by which man unites all parts of the earth to his habitat, and progressively overcomes the obstacles to civilization by making climate and soil to suit himself wherever he wishes.

To restate this important point in a word, it is true that the deeper inquiry into the process of continent formation, the physical struggle between the process of the upheaving or upbuilding of continents, and that of their obliteration by air and water; the explanation of the mountains, valleys and plains, islands, volcanic action, the winds, the rain distribution, is indispensable to a comprehension of the physical environment. But the study of the cities, their location, the purposes they serve as collecting, manufacturing, and distributing centers, leads most directly to the immediate purpose of geography in the elementary school, for it is the study of that civilization in which the pupil lives and moves and has his being.

Keeping this human standpoint in view all the time as a permanent interest, the inquiry into causes and conditions should proceed concentrically from the pupil's use of food and clothing to the sources of the raw materials, the methods of their production, and the climatic, geologic, and other reasons that explain their location and their growth. It is important in this as in all matters of school instruction to avoid one-sidedness. Although the human factor should receive the most emphasis, special care should be exercised lest the nature factor should be neglected.

A very instructive essay on the subject was recently submitted to the Manchester Geographical Society, and published in its journal. The author is Dr. A. J. Herbertson, lecturer on industrial and commercial geography, Heriot-Watts College, Edinburgh, Scotland. The following is the paper:

THE POSITION OF ECONOMIC GEOGRAPHY IN EDUCATION.

The movement for improved commercial education is part of a great change which, during the present century, has profoundly modified, in a greater or less degree, almost every civilized nation of the world. The nineteenth century has been marked by an extraordinary development of commercialism, an unprecedented acceleration of production, an enormous development of facilities of transport, and, consequently, of distribution, the constant opening of new markets, and the rapid exploitation of new lands. The consequent increase of population has led to the keenest competition both in production and distribution, and to a growing sense of the importance of the scientific study of both. Attention was at first chiefly paid to the scientific study

of production, or technical education, and is now being directed to the organization of a similar scientific study of distribution, or commercial education. To no country is this of more importance than our own. At the beginning of the present century Britain possessed a variety of advantages, many of them accidental and temporary, which appeared to ensure to it the commercial supremacy of the world. It was then impossible to foresee the rapid acceleration of mechanical invention and material progress which has done so much to equalize the nations of the world in the struggle for existence. At the beginning of the twentieth century we are starting little, if at all, ahead of our competitors, and this is the more serious, inasmuch as we have all been brought up to believe in the commercial superiority of Britain as part of the world's foreordained and unchanging order. Fortunately it is now becoming recognized that the day of lucky accidents is practically over, and that the time has come to organize commercial progress. Our competitors know this at least as well as ourselves, and have recognized, on the whole, perhaps earlier than we, that the successful merchant or trader requires, no less than the teacher or doctor, a strictly professional training. It is not, of course, denied that life supplies an empirical training by rough methods of its own. The battle between scientific and empirical methods has already been hotly fought on the question of the training of teachers, and it is not necessary here to recapitulate the arguments. It is now generally agreed that the empirical method is long, laborious, and wasteful. This most people will be willing to admit in the case of commercial education also, and the problem is therefore narrowed to that of suggesting, so far as our present experience admits, of various practical steps which should, and could, be taken at the present time.

ECONOMIC GEOGRAPHY IN SCHOOLS.

The object of school is not to train the young for special professions, but to educate them—that is, so to draw out the whole of their latent faculties, not forgetting the sense training, that at the end of the school years they are well qualified to begin, and to profit by, a more specialized professional training. The great task is not to impart information about isolated branches of knowledge, but to help pupils to realize that they are dealing with the actual problems of a living world, and that their success in any department of life will depend on their understanding of the problems it presents and their solution of them. Teachers protest against any further subdivision of subjects as detrimental to the true educational well-being of their pupils, and rightly maintain that too early specialization merely results in leaving the pupil stultified—neither well educated, nor even well instructed. It can not be too clearly understood that in the matter of geographical education we are entirely with them. Nothing could be more mischievous, or more useless, than premature specialization in certain aspects of geography, which can only be taken with advantage after a thorough and sound general education. The best service the school, whether primary or secondary, can be asked to render to the cause of commercial education is to improve and widen its general geographical teaching, laying stress on principles, on relations of cause and effect, on the influence exercised by geographical conditions on all the activities of man, and therefore, incidentally on his commercial and economic ones, in which many lessons will also be suggested by the events of the day. If this were done, the task of our various commercial institutions, at a later stage, would be a comparatively easy one, and it is precisely the absence of this preliminary geographical training which renders it so difficult for the specialist teacher of economic and commercial geography to do any but the most elementary work with his pupils.

The writer's experience, both as a teacher and as an examiner correcting papers from all parts of the United Kingdom is, that while there has been progress in the methods of geographic teaching in recent years, much remains to be done; that too little attention is paid to principles, and that the physical basis of political and economic geography is too much neglected. Before any great improvement can be looked for, teachers must themselves receive special geographical training. The programme for the new science schools which the Scottish Education Department have proposed may be taken as an indication of what will soon be required in all schools. The need for trained teachers to carry out such a programme is obvious, and it is all the more necessary as more time must be given to geography in most schools, which can be done without damaging other subjects only by a judicious use of the geographical aspects of those subjects. For instance, much elementary physics can be grouped with physical geography, applied mathematics with map making, and a free combination of history with physical geography as well as political geography may well be attempted. This will become increasingly possible as the codes grow less rigid and teachers are permitted to draw up their own syllabuses subject to the depart-

mental criticism. In this matter the Scottish department has again made a great step forward in their new code.

Such improvement in general education at school is a necessary preliminary to improvement in special education in commercial colleges. Without a proper grounding at the day school nothing but the most elementary work can be done at the commercial school and college, and this elementary work is practically all that is done at present. A great advance in the quality of work in commercial colleges will take place when the quality of that done in our primary, but more particularly our secondary, schools is improved.

IN THE COMMERCIAL SCHOOL AND COLLEGE AND AT THE UNIVERSITY.

Geography is at once a necessary part of the business man's stock of knowledge, and one of the best educative elements in his training.

The scope of geography as a tool will vary from place to place. In a great commercial seaport the leading routes, ports, and markets of the world would be more fully treated than in a manufacturing center, where only special ports, routes, and markets would require this detailed consideration. In one region some parts of the world are of more importance than others; the geography of these would require to be known in detail.

We may consider the needs of three different classes, each demanding a different scheme of education. (1) There are those going into business immediately on leaving school and who wish to supplement their knowledge by attending evening classes. (2) There are those who can afford to give more of their time to study, and take one or two years in a commercial college, or continue their studies in such a college combined with their daily work. (3) There are those who wish to specialize in the study of commercial subjects, and devote three or four years to this. These we may distinguish as elementary, intermediate, and advanced commercial training.

Elementary commercial education: The commercial evening school.—In the commercial evening school the geography course should be continued for at least two, and, if possible, for three years. In each year the student should gain a greater grasp of the principles of economic geography, as well as a more extensive knowledge of the distribution of economic products, and of trade centers and routes. In these two or three years a thorough knowledge of the economic conditions of the British Isles, of the principal British colonies, and of the leading commercial countries of the world should be gained, as well as of the economic aspects of general geography. This is not so impossible if the preliminary training has been satisfactory. At present most teachers of economic geography find they have to spend much time in imparting to their pupils an elementary knowledge, more particularly of the principles of geography. Hard and fast syllabuses issued by a central department, and applying to all schools, are very undesirable; but carefully considered suggestions would be useful to the teacher in making up his programme, more particularly at present, when no very definite tradition as to the content of economic geography exists.

Each teacher should be at liberty to draw up his own programme, which should depend on the economic conditions of the center, and also on the interests of the teacher himself. Any examinations should be conducted—as far as this is possible—on the teacher's syllabus and not on those of a central body. While no definite syllabus should be prescribed, a few suggestions may be found useful.

There are several ways in which such a class may be profitably conducted:

(1) For instance, a detailed study of the economic products of the home region, and of the regions with which it trades, might be made the means of imparting the most important detailed information that is required by the business man, and at the same time form the basis for a study of the main principles of economic geography.

(2) The British Isles may be taken as the area for detailed study, and the principles deduced from the facts learned in connection with them, such as the climatic control of wheat farming, the coal control of industry, and so on.

(3) Another useful method of beginning the study of commercial geography is to revise the facts of general geography from an economic point of view; to study the circulation of the atmosphere, for instance, and its relationship and effect on navigation, or the distribution of heat and its relationship to different types of plants.

Each of these methods has been adopted by one or other of the teachers at present active in our evening commercial schools. In a few years the experience gained will allow each teacher to find out what is really best for his pupils. At the same time an occasional meeting of teachers of geography to discuss methods would be a useful means of hastening this.

What is required most at present is an extension of commercial schools and a

better coordinated curriculum for the pupils who wish to obtain a commercial certificate at them. For this certificate economic geography ought to be one of the compulsory subjects, and each student should have at least two sessions in the classes in this subject before entering for examination.

Intermediate commercial geography: The commercial college for day students.—Many parents who feel that they can not afford to send their boys to a university or to a commercial college for full training desire to continue the education of their sons for at least one or two years after leaving school in some higher institution. In commercial colleges provision should be made for the training of such pupils, and also for another type of pupils such as we find among the law students of the Scottish universities. In Edinburgh and elsewhere law apprentices are permitted to attend university classes one or two hours a day during their apprenticeship. This might well be extended to youths beginning business who would devote part of the day to acquiring a knowledge of practical business, and during another part be continuing their general education, specialized along economic lines. Commercial colleges and the faculties of commerce in our universities should provide for the needs of such students. The courses for such students should be more advanced and thorough than those of the commercial evening school. The main difference from the training in the evening school should be the greater insistence on the principles of economic geography combined with a study of the history of commerce, more particularly in the nineteenth century, thus giving the pupils a sound knowledge of the causes bringing about the great economic development of present times. Such a training for those who will become the managers or principals of great businesses is of the utmost consequence. At present practically no systematic provision is made in this country for this education. Both in technical and commercial matters the country has become thoroughly alive to the necessity for proper education, and steps to insure it are gradually being taken. Already our technical schools may be called satisfactory, and it is hoped that in a very few years our commercial departments will be equally advanced. Both in technical and in commercial matters, however, there is a great lack of opportunity for higher education. This higher education is quite as essential as the more elementary.

Higher economic education: The faculty of economics in the university.—Those who are going to lead in the economic world need as thorough a training as those who lead our navies and armies. It may be said that the most valuable training will be in the actual world, and of course this is quite true; but to make this experience of the actual world of greatest service it is necessary to put our leaders in possession of a thorough knowledge of economic facts and principles, and, above all, to give them the power of applying the principles to the facts, to train their power of judgment and of prompt and efficient action. Economic geography from this point of view is no mere collection of statistical data, either of distribution of commodities or of the means of distributing commodities. It is not even confined to a study of the movement of commodities from place to place. An economic leader must be capable not merely of surveying the world with an economic eye and seeing all the economic movements that are taking place, but he must have a vision of the economic possibilities of regions and markets still undeveloped. He must be able to realize possibilities as well as actualities. Only in this way can we train men who will organize the victories of peace.

The task of training such leaders in the world of industry, trade, and finance is one which should fire the imagination of all our university authorities, more particularly those situated in great industrial and commercial cities, such as London, Birmingham, Manchester, Liverpool, Leeds, and Glasgow.

The economic, however, is not the only aspect of applied geography which should be dealt with in a modern university. A geographical training should be given to men of affairs, civil servants, consuls, explorers, and missionaries, as well as to business men. Provision should be made for special courses which would be useful to engineers, physicians, soldiers, and, in the maritime cities, also to sailors.

In all universities the application of geography to teaching should form one of the most important features of the work of the department. Just as the training of the business man is a natural interest of the universities of our great cities, so the training of the teachers for the economic schools fits in well with the plans of the older universities.

In the economic side of every university a very thorough training must be given to the students. In addition to the theory and history of economics and other subjects taught in the economic schools of such universities as Pennsylvania, although not yet in this country, economic geography should be an essential subject. This should include not merely an intimate knowledge of the descriptive geography of the different countries of the world, from an economic point of view, but should deal

with such facts as their weights and measures, their customs regulations, and the nature of their ports and their facilities of communication by land and sea. It should include a study of the different races of the world from an economic point of view, considering their customs and prejudices, the nature of their clothing and utensils and their wants, more particularly those which can be supplied by our manufacturers. The student should have practical acquaintance with the produce of different parts of the world (*Waarenkunde*), although this need not necessarily be taught by the geographer.

The student should be accustomed to deal with statistics of all kinds and should know the principal publications of our own and foreign countries where economic information can be obtained. Reports issued by the boards of trade, agriculture, and other Government departments, reports by our consuls, and other official publications should be perfectly familiar to him, and he should be trained not merely to consult, but to interpret, such documents; in other words, he must learn the way to handle geographic tools. A knowledge of the use of tools alone is not sufficient. The power to direct the using of tools is even more important. The habit of interpreting statistical and other reports, as well as of acquiring the information they contain, is essential in a successful merchant or financier. In the economic geography course, therefore, great stress should be laid on a thorough understanding of the principles of economic development, and as far as possible this should be applied not merely to the interpretation of the present economic conditions, but also to a forecast of those of the near future. The economic possibilities of many parts of our empire, the possibility of making new or of extending old markets, should be constantly studied.

The economic section of a geographical department must, therefore, be equipped not merely with highly skilled teachers, but with adequate apparatus. The geographical department should be as extensive, and would probably prove as expensive, as any other department in the university. It requires its special institute as much as physics or chemistry or any other subject which has at once an academic and an economic interest.

The geographer has to know his types; he has to accumulate his samples as the biologist does; he needs more books and maps, more photographs and specimens, than any other teacher in a university, and these usually of a more expensive kind. The staff must be that of experts. Not merely one geographer is wanted in a modern university, but at least half a dozen, each of whom is a specialist in some section of the subject. Each teacher should be an expert in either one great region or in one aspect of geography. The specialist in one continent or country should every now and then be afforded facilities for visiting it. He should correspond with and as far as possible know personally the other leading authorities on his own region. All the important publications relating to that country should be systematically added to the departmental library under his charge. Each expert should be responsible for the up-to-date character of the books, maps, specimens of his own special area. He should keep a card catalogue of published matter dealing with his special region, and should be able to give information to the business man as well as to the student on any subject connected with his particular region. While teaching should form part of his duties, general research and the direction of research should take up a large proportion of his time.

In the library, map, photographic, and museum departments it is desirable that there should be the closest possible cooperation between the geographical department of the university, the local chamber of commerce, and the geographical society. All of these bodies are constantly accumulating literature, etc., of economic interest, which it would be well to unite into one collection arranged in a uniform manner. The collections should be so arranged that they are always easily studied, and they should be housed near enough the business center of the town, as well as the university, that both the business men and the university students would find it easy to make constant use of them. This institute might well be the center from which the loan collections of all kinds might be sent out to the towns round about, in the manner which Mr. Sowerbutts has suggested for his proposed commercial museum. In this way the closest connection would be maintained between the academic and the commercial world. The work of the geographical department would be given not merely the theoretic completeness of the university department in the matter of research and of teaching, but both of these would be so determined by the practical needs of the community that the pupils trained by the geographical department would possess a thorough knowledge and practical power of dealing with concrete economic problems, and by it the research work published would have a completeness and a practical utility whose importance it would be difficult to exaggerate.

Dr. Herbertson, the author of the preceding paper, presented also a report of what is being done in some other countries in regard to the study of applied geography, and this report contains a number of statements of facts that will be welcome to educational authorities everywhere. It is therefore reproduced in full. The following is the report :

REPORT ON THE TEACHING OF APPLIED GEOGRAPHY.

[Prepared at the request of the council of the Manchester Geographical Society. By Dr. A. J. Herbertson, F. R. S. E., F. R. G. S., lecturer on Industrial and Commercial Geography, Heriott-Watt College, Edinburgh.]

INTRODUCTORY.

Just as geography may be defined as a special way of looking at the greater organisms that make up the world—its mountain and river systems, its plant and animal associations, its races of men and their organizations—so applied geography may be defined as a special way of looking at geography, a limitation and a specialization of the study of it from one point of view. For the business man this point of view is an economic one, for the medical man a climatic and demographic one, for the missionary an ethnic and ethical one.

There is one aspect of applied geography which is not dealt with at all in this report—the educational one. The educational aspect has been too much neglected both by schoolmasters and by geographers. It is not sufficiently realized that all departments of geography should not necessarily be taught in school, but that a good teacher must make a selection. The limitations he will put on geography will vary with the locality wherein he lives, and the future work of the pupils he teaches. The choice of the most educative elements of geography is a difficult one, and requires considerable knowledge and great judgment. * * *

The applications of geography to military, medical, and missionary purposes can be very briefly dealt with, as, at present, the subject is practically not included in the curricula of most colleges and schools training for these professions.

In addition to the very elementary geography required for entrance to the military school, geography is studied in connection with history, and military topography is another subject taught.

The following letter, from one of the leading missionary societies, summarizes the customs of most:

“In reply to your questions concerning the instruction of missionaries in geography, I am afraid that I have not much information to give.

“(1) Our committee have not thought it necessary to require any more special knowledge of geography from missionary candidates than is represented by an ordinary English education.

“(2) Owing to the extent of the society's operations, and to the impossibility of foreseeing special vacancies in the mission field, we are not able, as a rule, to assign candidates to any particular mission until near the time for them to sail, and hence we can not do much in the way of giving instruction to individual new missionaries concerning the special geography of the country to which they go. As soon as we do know to what particular mission a particular candidate is going, we do what we can to help him obtain, before he sails, such knowledge of the country as is likely to be of use to him. This would have more to do with the people and their history, customs, and religions, than with the physical features and productions of the country; and we seek to do this by lending him books and by putting him in touch with retired missionaries or those at home on furlough.

“I ought, perhaps, to add that our medical advisers make a special study of the climates of the different countries to which our missionaries are sent, in order to be able to advise us as to the suitability of individual candidates for this or that field, and that we, of course, also keep ourselves informed as to the kind of food to be obtained in any country, so as to be able to advise recruits what supplies to take with them. Beyond this we do not make any special study of the products of the different countries, as our missions are not in any sense commercial.”

It would certainly add to the admirable work already done by so many missionaries, both as missionaries and geographers, if a more careful training, more particularly in human geography, could be given to them than the slight elementary knowledge they gain at school and the special information they obtain from experts and standard works in the hurried weeks immediately before their departure for the mission field.

A certain amount of geography is no doubt taught in the public health depart-

ments of the leading medical schools, but as far as can be learned no systematic study of medical climatology or demography is given in any of our medical schools.

At the present time the idea of applied geography is perhaps limited in most minds to that of economic geography, or even to purely commercial geography. There are many reasons for this, the pressing practical need for the recognition of this aspect of geography being the most important. Technical education has recently been organized throughout the country, and may be said to be developing in a satisfactory way. Having turned our attention to the practical scientific study of production, we must now do the same for distribution. The school for the practical scientific study of the means of distribution—the commercial college—has not yet had the attention paid to it that it ought to have and that it will have. In such a college the commercial side of geography should have a very important place. Commercial geography is the study of the alteration of existing distributions of commodities and of the means by which these changes are effected. It corresponds to the study of circulation in the human subject. It is not a statical, morphological study of a dead world, but a dynamic, physiological study of a living one. Hence it is at once a most attractive and a most difficult subject—one requiring careful preparation of the pupil and still more careful and thorough training, combined with a wide experience of the world, of men and of their economic activities on the part of the teacher.

It is to this aspect of applied geography that this report is almost exclusively confined, and it contains a summary of the results of an inquiry into the existing state of affairs in this and other countries, such as can be gained from correspondence and perusal of documents, a selection of which is given in an appendix.

THE PRESENT POSITION OF ECONOMIC GEOGRAPHY IN OUR EDUCATIONAL SYSTEM.

To ascertain the present position economic geography holds in our educational system many teachers of commercial geography were approached in person or by letter, and a correspondence was entered into with the managers or directors of technical and commercial colleges and others interested in the subject. In addition, a circular letter was sent out by the society to all the chambers of commerce in this country, asking for information about the teaching of commercial geography in their district, and what steps, if any, each chamber had taken to promote its study. Answers were received to this letter from 31 chambers, and in a number of cases led to a correspondence with other local authorities.

A large number of the chambers of commerce replying, while stating that they had done nothing directly to found courses in commercial geography, expressed sympathy with the idea of having them, and some urged the great need there was for them. One secretary in the north of England wrote: "Boys leaving any kind of school in this country are not acquainted with an elementary knowledge as to the location of the chief towns of their own and other countries. I have known an intelligent boy state Rotterdam was in Belgium and ask if a letter to Pontypridd required a foreign stamp."

The following letters are typical of another set of answers:

"In reply to your inquiry respecting the teaching of commercial geography in this district, I regret to say that we as a chamber consider that instruction in this important matter does not receive the attention it deserves.

"Outside the ordinary school curriculum there are few opportunities for its study, and a special committee of the chamber is now engaged in striving to find the means for encouraging an interest in this and kindred subjects.

"The chamber is not making any special efforts to promote the teaching of commercial geography, although we have been endeavoring for some years to give special prominence to commercial education generally, but owing to the lack of cooperation of the educational authorities we have been unable to effect our purpose at present.

"I have made inquiries of the scholastic authorities in the neighborhood, and am informed that all the teaching in the higher grade schools on this subject is in this direction, the masters giving prominence in their lessons to matters connected with productions, industries, and trades of various countries."

One chamber, which reports that commercial geography is taught in secondary schools, adds: "An evening class was opened some years ago in commercial geography, but the attendance was so very small that the governors were obliged to close it."

A number of chambers try to promote the teaching of commercial geography by giving certificates and prizes on the results of examinations on the subjects, and the London chamber has organized special commercial examinations (see later). Some chambers have succeeded in getting commercial geography made a course in the local technical school, and others are making arrangements for such a step next session. Some chambers have a list of firms giving preference to candidates for situa-

tious who possess a commercial certificate, but in a few cases commercial geography has no place among the subjects necessary for this certificate.

The agencies at present engaged in directly spreading a knowledge of commercial geography are: Secondary schools, some of which have special classes in the subject for advanced pupils; evening continuation schools, technical and commercial schools and colleges, the university colleges and the university extension societies, and the geographical societies.

It is not possible to discover how many secondary schools have special classes for commercial geography. Those which do usually prepare their pupils for examination in the subject by one or other of the authorities noted below. It is a debated subject whether commercial geography should be taught as a special subject in our secondary schools, and the writer of this report, while admitting it may be desirable in special circumstances, is strongly of opinion that as a rule it ought not to be attempted, and that the time would be much better spent in giving pupils the thorough grounding in the facts and principles of geography, which they so rarely get at present. No good teacher of geography, however, will ever omit to point out to pupils who can appreciate the points the economic applications of the geography lesson.

For the continuation schools a very satisfactory syllabus has been prepared by the educational department for the guidance of teachers, and it has the great advantage of being a syllabus the teacher is not bound to follow, but one which he can modify to suit local needs. (See Appendix A.) The number of continuation schools teaching commercial geography in England and Wales in 1897-98 was 495, and payment was claimed for 12,460 pupils.

In Scotland in 1897-98 geography was taught to 18,191 pupils in 237 departments of continuation schools.

Many of our technical colleges have a commercial department, and in most of them which have this department commercial geography is taught. The syllabuses vary very much, depending partly on local conditions, partly on different conceptions of the content of commercial geography. In some cases the syllabus is peculiar to the institution, in others it is that of one of the chief examining bodies.

Special attention must be called to the efforts to promote sound teaching of commercial geography in the West Riding of Yorkshire. The county council have arranged for a special set of Saturday lectures on commercial geography for teachers. These are given by Mr. E. R. Wethey, M. A., F. R. G. S., whose syllabus is appended. A special set of slides is prepared for each lecture. The lectures have been very successful, and the secretary of the Heckmondwike Chamber of Commerce reports: "Commercial geography is taught here at the higher schools both in day and evening classes. The school teachers attend the county council classes at Leeds on Saturdays and reproduce the lectures here with the use of the lantern slides."

The training of commercial geography teachers is of the utmost importance, and it is satisfactory to be able to report that it has been undertaken in several other centers, making use of the University Extension organization.

During the winter of 1898-99 University Extension courses in economic geography were given in different parts of England, but mainly in London, and are well attended. The examinations have not yet been held, but last year the results in cases coming under the writer's personal observation were very satisfactory.

In 1898-99 four courses, each of 25 lectures, dealing with different branches of economic geography, attended by 358 pupils, were given in connection with the London University Extension Society, one of the courses with the cooperation of the London school board. Other courses in geography were given by University Extension lecturers of Oxford (2), Cambridge (3), London (3), and Victoria (1), which had only an indirect connection with economic geography or none at all.

Hitherto the universities have paid no attention to economic geography as a special subject for students of geography or of economics. This winter Liverpool University College, in conjunction with the chamber of commerce and the technical instruction committee of the county council, founded a school of commerce. Commercial geography is one of the subjects. The school of commerce is, however, at present only an evening one, and corresponds to that of Nottingham University College and to the technical evening colleges elsewhere, and not to the faculty of commerce that now exists in several foreign universities. The importance of such a faculty of commerce has been ably urged by Mr. Chamberlain for Birmingham, and should become part of the universities in all our large cities.

One institution in this country, however, can be compared with some of the best foreign ones—the London School of Economics, where lectures are given in economic geography.

So far as the writer can learn the University Extension lectures, those in Leeds to

West Riding teachers, and those in the London School of Economics, are the only means of gaining instruction in aught but the rudiments of economic geography at present available in this country.

The various geographical societies, by their lectures and journals, do much to promote an extension of our knowledge of commercial geography, and none more than the Manchester society. The museum proposed by the society will prove of great service to those who have access to it; and it is an essential part of the new scheme that arrangements be made for lending small sample collections of economic interest to the schools and colleges which affiliate themselves with the society. This will facilitate the carrying out of one of the recommendations of the education department in the north of England. (See Appendix A.) The unique work of the "Victorian" lecturers of the Manchester Geographical Society must be mentioned in this report. In 1898-99 many lecturers dealt with various parts of the British Empire and other lands, from an economic as well as a geographic point of view.

Several organizations exist for examining the pupils trained in commercial geography. Commercial geography is not a subject necessary for the College of Preceptors' commercial certificate, but it is part of commercial English for the intermediate education board for Ireland, and commercial history and geography form one compulsory subject for the commercial certificate of the local examinations of Edinburgh University. In England several bodies are especially concerned with the examination of students of commercial geography—the London Chamber of Commerce (examinations in London, Southampton, and Jersey); the Society of Arts (Birmingham and elsewhere); the Union of Lancashire and Cheshire Institutes, and several county councils, which give commercial scholarships and exhibitions and conduct special examinations for candidates, like the Lancashire County Council.

What is needed at the present time in this country seems to the writer to be:

(1) A clearer idea of what should be taught as economic geography; for the impression his experience leaves is that far too many of the faults of the old methods of teaching geography are still retained. Wearisome and useless lists of capes, islands, rivers, and mountains may not be given, but they are too often replaced by equally objectionable lists of exports and imports.

(2) Means for training teachers of geography and business men who wish to learn more than the most elementary facts and desire to become experts. The universities and university colleges are the bodies on which the duty of doing this should fall.

(3) At the same time an expansion of University Extension lectures and the formation of advanced classes in the subject in our technical and commercial colleges are much needed. The writer's experience is that the first year at a commercial geography class only suffices to prepare a pupil to begin a thorough study of the subject, and that much good work is lost both to pupil and teacher through there being no opportunity for continuing the work together.

ECONOMIC GEOGRAPHY IN FOREIGN EDUCATIONAL SYSTEMS.

Without personal inspection of the different kinds of commercial schools and colleges at home and abroad it is very difficult to form a very decided opinion on the question whether other countries are more advanced than our own in the teaching of economic geography. In all countries special attention is now being directed to commercial education, and every year new schools are being started, and the scope of those already existing greatly enlarged. Probably the facilities at present available for learning elementary commercial geography are almost as good in this as in other countries; but the British teacher labors under the disadvantage that his pupils are not so well prepared to profit by his teaching as those of Continental countries such as France, Switzerland, and Germany; and he himself can not find the means of obtaining a geographical training such as most foreign teachers possess.

There can be no hesitation, however, in pointing out that greater facilities for higher training in economic geography exist in some foreign countries than at home, and it is necessary to emphasize the need for adequate provision of higher economic education in this country.

A summary of the information received from various foreign correspondents is given here, and extracts from some of the syllabuses sent are printed in the appendix.

France.—The director of secondary education in France has kindly drawn up the following valuable statement on the position of economic geography and the history of commerce in the commercial schools of France:

"The teaching of geography and the history of commerce has an important place in the syllabuses of the higher commercial schools and the commercial colleges of France. The final examinations of these institutions give the successful pupils a

coveted dispensation in the matter of military service, and this attests their importance.

"In the commercial schools, as in the lycées, the study of economic geography is based on an exact knowledge of the physical structure and the political conditions of a country. The French programmes have never encouraged the introduction into the lessons of lists of agricultural products, of manufactured articles, of means of communication, and of commercial statistics under the pretext of adapting geography to the needs of practical education. It is made a means of giving the pupils a true education; that is to say, of developing their powers of reasoning and of initiative. For this purpose the section of physical geography is in no ways limited. The masters, however, are recommended to avoid the faults of useless erudition, and to adapt the physical geography to the end in view. For instance, if they have to touch on the domain of geology, it ought to be to furnish general notions about the composition of the most fertile soils, and to indicate the distribution and the importance of the common minerals. In studying climates they ought to teach what is of importance for agriculture, and how climate affects ocean navigation. In describing the mountains they ought to insist upon the distribution of valleys, passes, and slopes. In dealing with rivers they ought to show how their length, depth, and variations make them suitable for navigation. The same precautions are enjoined in studying the conditions of animal and vegetable life.

"This essential discipline is easier in our commercial high schools owing to the custom of associating history and geography in education. It appears to our educational authorities, or at least to the greater number of them, that a real adaptation of the geographical studies, such as their limitation to the social facts of the diffusion of wealth, has its foundation in the historical method. Our pupils seem to be trained by this discipline to direct their interests toward the ideas which explain the relationship of the human societies to the regions in which they are settled, or are commencing to be settled, by commerce and by colonization. We have tried to orient our commercial education like our classical education, by the philosophy which is necessary to it. Hence it is that the history of commerce is a subject intimately allied in its educative work with the study of history properly so called, and of geography. Formerly the history of commerce was confined to an account of the mere general facts of exchange, and an explanation of economic doctrines; now our instruction in the history of commerce tends to become explanatory and evolutionary. The descriptive lessons are always combined with an examination of the geographical conditions of each people and of each epoch. In short, the programmes of history, commercial or other, and of geography are harmoniously and strictly bound together. At any rate, we attempted by the formal instruction and by the tendency given to the final examinations to arrive at this result.

"It is probable that an approaching modification of the entrance examination to the higher commercial schools will give a powerful and efficacious sanction to the reforms of which we have just sketched the spirit. At present the entrance examinations are entirely oral as far as regards geography. In future a written examination in the form of questions, of problems, and of a dissertation will be compulsory. Consequently the candidates will hereafter be trained, not merely in an exact knowledge of descriptive geography, but also to coordinate their information, and to deduce well-reasoned conclusions. Alongside the course in theory there will be a course in applications. The power of judgment will be developed, and that of pure memory minimized. We consider that geographical education will not bear fruits except under such conditions.

"In the examination for our professorat commercial there will be the same endeavor to associate the geographical teaching with the greatest possible number of other studies. In the higher examinations geography is not allied to the history of commerce nor to the political economy, which are treated by themselves, for we are guaranteed against an abuse of specialism by the age and maturity of the student. We ask the candidates, however, after a brief preparation, to discuss a question in economic geography in a foreign language. This ingenious examination has given us the greatest satisfaction. Owing to the complex character of this text we are assured that the future professors, sent on a mission to a foreign country, are not merely trained in the current language, but have lived among the people of the country in which they have visited, have heard the discussions in different kinds of societies, and have read much. In this respect we are fully satisfied with the results.

"In general outline such are the principles which dominate our teaching of economic geography. They are of the same nature as those which inspire all our secondary education."

Economic geography has an important place in the curriculum of the *L'Ecole des Hautes Etudes Commerciales*, which is supported by the Paris Chamber of Commerce.

This school prepares students intended for business or industrial life for positions in banks or in railways, for the consular and the civil service, and for commercial teaching. The pupils are those who have passed through the Lycée or other secondary schools, and must be over 16 years of age. An entrance examination is required. A special preparatory school has been formed for preparation for this examination.

Belgium.—Twelve special commercial schools exist in Belgium. The most important are those connected with the Universities of Brussels and Liège and the Higher Institute of Commerce in Antwerp.

At these institutions the course extends over two years, but for those entering the consular service a third year is required.

The pupils at the Antwerp Higher Institute of Commerce have to pass an entrance examination on the general subjects of instruction in the Athénées, Colleges and Gymnasias, and a preparatory course is also given at the institute for this examination, in which physical geography forms a part. A commercial museum, library, and laboratory form part of the institute.

German Empire.—The following quotation from an interesting and valuable report on Commercial Education in Germany, by Mr. Consul Powell (Diplomatic and Consular Reports, Miscellaneous Series, No. 483, 1898), summarizes the present condition in Germany:

"There existed in 1891 in the German Empire 165 commercial continuation schools, of which 65 had been started since 1885. In Prussia there were 77; in the other States, particularly Saxony and Baden, 88, only one of which was founded by the Imperial Government. Town councils founded 23; chambers of commerce, 11; merchants' guilds, 20, and others by associations and private munificence. The State granted a subvention to 54, and town councils to 68.

"A higher order of commercial education is found in the secondary commercial schools, sometimes improperly styled commercial academies, and are either independent establishments, as those of Leipsic, Dresden, Chemnitz, and others, or only special branches attached to the higher public schools, as at Munich, Zittau, Frankfurt-on-the-Main, Flensburg, and a few other places.

"The intention of these commercial academies is to benefit those young men who, before entering business, wish to devote a few more years to the further cultivation of higher branches of commercial knowledge, and to perfecting themselves in modern languages. On the other hand, the 'Handelsschulen,' which are based upon or joined to the national school or secondary school system, teach German, foreign languages (always English and French, oftentimes Italian and Spanish), history, geography, mathematics, natural science, drawing, commercial history, banking, exchange, commercial law, bookkeeping, political economy, knowledge of merchandise, and technology.

"It is now stated that the Prussian Government are next session going to introduce a bill in the Landtag to provide a considerable sum of money for the support of commercial education, not only with reference to the education of clerks, but also as a new department in University Extension, and it has been deemed advisable to imitate the example of Leipsic with its recently opened commercial university, and to attach to a number of universities a special branch for the teaching of commercial knowledge in its more advanced and scientific regions, similar to the polytechnica at Karlsruhe and Darmstadt, which, so far as I am able to ascertain, were the first to adopt the Leipsic method.

"At Aix-la-Chapelle, Berlin, Hanover, and other places possessing polytechnic institutes, special departments for commercial instruction are to be added, the efficiency and success of which can hardly be doubted. In short, the great interest in commercial education which has now been aroused in the various governments of Germany is sure to produce very considerable results before long."

Dr. Sigismund Günther, professor of geography in the Polytechnicum at Munich, has sent an account, of which the following is a summary:

"Our school gives a complete course in commercial and economic geography every year, two hours per week being devoted to it. In winter extra-European countries, and in summer Europe, are dealt with. The course is compulsory for all who aspire to become custom-house officers. Except this school, there is no other in Bavaria dealing with this subject from an academic point of view, but a proposal has been made to organize a course in this branch of applied geography at our industrial metropolis—Nuremberg. Except for this, there is no advanced instruction in economic geography, although it is naturally a subject taught in the elementary commercial school."

In Leipsic, the Public Commercial School (Öeffentliche Handelslehranstalt) is nearly seventy years old, and is now under the charge of the chamber of commerce. In the division preparing youths who have finished their school course for business geography is taught two hours a week in each of the three classes.

Dr. Kurt Hassert is giving a course of lectures of three hours per week in the University of Leipsic, and also in the Commercial University (Handels-Hochschule) on the geography of the world, transport, and trade.

Dr. T. Delius, lecturer in English and in economic geography in the newly formed commercial department of the Royal Polytechnicum, at Aix-la-Chapelle, has kindly supplied the following information:

"For some time past there has been a movement on foot for a higher commercial education on the plan of our university system, but it has not as yet resulted in the establishment of a new institution except in Leipsic. Last year they tried the experiment at Leipsic of admitting young business men to the university lectures on the same footing as the other students, and the experiment seems to be successful. We are trying here a different arrangement, viz, the addition of a commercial department to the technical one already in existence. There will be lectures on all the principal subjects that interest business men: Political economy in all its branches, commercial law, commercial arithmetic, 'waarenkunde' (knowledge of merchandise), modern languages, commercial geography, etc., so as to provide for the needs of a higher education for business men.

"For economic geography only two lectures a week are provided at present, but I hope to obtain more before long. In the winter session I intend to lecture on America, Australia, Africa, and Asia, while my colleague, Dr. Lehmann, is going to lecture two hours a week next summer on general economic geography and Europe. This arrangement will probably be modified at no distant date, but at present the whole thing is in an embryonic state. The funds for the new department are not provided by the State, but by the chamber of commerce and other commercial corporations. We are going to establish a commercial museum in connection with our department. We have funds for 'Waarenkunde' and for a collection of coins—the latter of which is under my charge in the summer session. I lecture on measures, coinage, etc. Besides, I intend to establish a geographical collection—especially literature—monographs, etc., referring to economic geography."

Netherlands.—Mr. W. R. Bischoff, honorary secretary of the Netherlands Chamber of Commerce in London, has kindly obtained the following information from Mr. J. Yzerman, of Amsterdam, lecturer in geography at the Commercial High School at Amsterdam, through the intermediary of Dr. J. H. H. Hülsmann, head master of the same school:

"In all Dutch schools the pupils go through an elementary course of geography. There is no special training in commercial geography, except in those schools which are specially devoted to the education of pupils in commercial matters.

These schools are: (1) The Commercial High School at Amsterdam, where a course of lectures is delivered twice a week, extending over two years. This school is organized by the municipality of Amsterdam.

"*Syllabus.*—The Netherlands, and its colonies and possessions, is the special subject treated in these lectures, but the most important European countries—e. g., England, Germany, France, Belgium—and the most important non-European countries—e. g., the British colonies, Egypt, China, Japan, United States of America—also receive careful attention. The industries, commerce, connections by sea and railway and telegraph, the transport arrangements, the ports and markets of those countries, are studied. The physical condition, climate, the food, etc., are described. Full statistics are given. These are mostly derived from consular reports. The statistics for the Netherlands and its colonies and possessions receive most consideration.

"In former years 'Zehden's Commercial Geography' was used, but as it gives most particulars about other countries than the Netherlands, and very little about the Netherlands, the pupils have had to rely on the lectures delivered by the teacher.

"(2) The private Commercial High School at Amsterdam. We know commercial geography is taught at this school, but we have no particulars of the course of instruction.

"(3) Twentsche Commercial and Industrial School at Enschede. The manufacturing district in Holland, in the province of Overysel, is called Twente; it is the Dutch Lancashire. The curriculum lasts one year. The programme includes the Netherlands, its colonies and possessions, and the countries which have most commerce with it. The highways of the world's commerce are also treated.

"(4) The Commercial Class at Rotterdam. The curriculum lasts a year, two lectures a week. The programme includes the principal countries of Europe. The special subjects are: The centers of industry, the commercial highways by land and water, the condition of the agriculture, and the principal commercial towns. Plants—cotton, flax, poppy, etc.—which have importance in commerce and industry are dealt with, and special attention is given to their cultivation, their peculiarities, their transport, etc. The chief markets for the raw products and for manufactured goods are described.

"In connection with the schools or classes numbered (1) and (4) a public high school exists, where the pupils are, more than at the other public high schools in the Netherlands, taught with a view to a subsequent special commercial training. The education at those two public high schools lasts three years. Pupils enter generally when they are 12 years of age.

"Only pupils who have successfully passed through the three years' curriculum at these public high schools, or their equivalent elsewhere, can follow the whole course of lectures delivered at these commercial high schools. Such training, however, is not necessary for pupils who want only to attend to the lectures on one or two special subjects.

"At the Commercial High School at Amsterdam lectures are delivered like those at Rotterdam with regard to the raw products of industry and commerce (wares and merchandise). This forms a special subject, and is not treated in connection with commercial geography.

"The above are the chief points of the report which has been sent to me.

"Commercial geography is taught in the Netherlands in the two principal commercial towns, and in the principal seat of industry.

"The idea of the educational system in the Netherlands is that commercial geography can only be taught successfully if the pupil has a sound knowledge of the general geography of the world. It is not taught to children under the age of 15 years, and only to pupils when they have had such an education as will enable them to follow such a subject intelligently. It is only taught to those intending to follow a commercial career.

"Commercial geography is looked upon in the Netherlands as a special subject of teaching. This is why it is taught in a thorough manner. The better the grounding in general education the pupils have the higher the standard is that the teacher can aim at."

United States of America.—The University of California has founded a college of commerce of full academic rank. Prof. George Davidson, who has been over fifty years in the United States Coast and Geodetic Survey, and whose travels are counted by hundreds of thousands of miles, has been appointed to the geography chair. His course this winter deals with the Pacific; its currents and winds and highways of commerce, and countries bordering the Pacific; the nature of these countries and of their peoples; their various products and manufactured articles; their inland transportation; and their relation to the great highways of commerce. A commercial museum is attached to the college.

The University of Chicago has also founded a college of economics and politics; but as yet no provision has been made for the teaching of geography.

The economic schools of several other American universities are very important, but except for lectures upon transport, usually associated with transport law, geography is not a subject dealt with in them.

The Commercial Museum in Philadelphia deserves special mention, although it does not as yet have any systematic courses of instruction in connection with it. Some of its monographs on economic geography are such as should be prepared in the economic section of the geographical department in a modern university. Some of the specimens of its great collection are arranged geographically, and the museum ought to be a great center for teaching economic geography. Commercial museums should form part of the necessary equipment of every geographical department, although not necessarily on the elaborate scale of the great one in Philadelphia.

CONCLUSIONS.

1. There is a growing realization of the importance of commercial geography in all commercial countries. In many centers of our own country, more particularly in the industrial regions of England, so much has been done in the way of forming classes on the subject in the evening schools that it is coming to have a more important place in the evening continuation schools everywhere.

2. On the other hand, there is no consensus of opinion as to what commercial geography is, or what should be the successive stages in which it is taught. The diversity of syllabus, however, is a good feature, for every region has its own particular economic conditions, which should largely determine the details of the syllabus.

3. One difficulty most teachers of commercial geography in Britain have to contend with is the lack of geographical training in their pupils, and much time has to be spent in teaching them what they should have learned at school. The syllabus of the entrance examination of the *École des hautes études commerciales* in Paris is an example of the knowledge required abroad before a pupil is admitted into an

advanced commercial school. The need for improving the quantity and the quality of the teaching of geography in our schools, where it is so often neglected, is a very pressing one, and must be attended to if the special training of the evening and day commercial schools and colleges is to be of much value. A thorough and sound commercial education can only be based on a thorough and sound general education.

4. Another difficulty is that teachers have to teach themselves, and at present hardly anything is done to help them to do this. More advanced teaching in economic geography is even more necessary than an extension of elementary teaching. At present practically no provision is made to systematically give advanced instruction in economic geography, and this is not likely to be done until the matter is seriously taken up by the universities. The directors of industry and commerce need this systematic training even more than their subordinates, and it is of vital importance that the universities and the more advanced technical colleges should see to the adequate provision of the means of teaching this subject, as the Germans and Americans are beginning to do.

It would seem, therefore, that the continental nations are ahead of us in the more thorough training given in geography in schools; that, like ourselves, they have become thoroughly alive to the importance of a sound special training for young business men after their school years, for which they are now making provision, and in the matter of advanced economic training they have moved ahead of us.

Some of the writer's views about the economic section of a geographical department are outlined in the accompanying paper. In conclusion, he has to thank the numerous correspondents who have so readily answered his many questions, and, above all, the Manchester Geographical Society and its energetic secretary for the opportunity of making this survey of the present position of the teaching of economic geography.

APPENDIXES.

APPENDIX A.

SYLLABUS OF EVENING CONTINUATION SCHOOL CODE IN COMMERCIAL GEOGRAPHY, ENGLAND AND WALES, 1898.

A good grounding in the physical features of the earth's crust, the variations in climate and in animal and vegetable life should have been received before a scholar enters upon the study of commercial geography, which deals with the geographical distribution of commercial commodities, chiefly food, with raw and manufactured products and minerals, and with various facilities and hindrances to trade.

The full course is divided into three stages, as follows:

Elementary stage.—The British Isles, means of communication and transit by land and by water, the trade routes and facilities for communication with all the more important countries of the world.

Intermediate stage.—One British colony, India, and one foreign country; the commercial relations of each with Great Britain and with other countries as affecting the interests of Great Britain.

Advanced stage.—Some one branch of British trade to be thoroughly studied, commencing with the cultivation or production of the raw material, its distribution, and conveyance, manufacture, markets for finished products, duties and tariffs (if any), competition of other countries.

It is suggested that each country should be dealt with on lines similar to the following:

(1) Position, configuration, and climate, and their influences on the prosperity of the country. (2) Raw productions: (*a*) Mineral, (*b*) vegetable, (*c*) animal: How and where found, how rendered of commercial value, for what used, and price (fluctuant or otherwise). (3) Manufactures and markets therefor. (4) Means of transport and communication (natural and artificial). (5) Exports: Natural or artificial (tariffs) restrictions to the development of trade. (6) Imports: Natural or artificial (tariffs) restrictions to the development of trade. (7) Seaports, river ports, and other commercial towns. (8) Trade routes traversed by British ships bearing import and exports. (9) Foreign competition encountered by British merchants and extent thereof.

The course should embrace the study of the localities where and the geographical and local conditions under which the various commodities are produced; the means of transit, and the trade routes available, both for inland and for export, together with the distances and ordinary modes of conveyance to important markets; the quantities available for export, and the actual recent rates of export to various countries;

neutral markets and extent of British trade with them; the quantities in demand as imports, and the extent to which this demand is met by various foreign countries; the capacities of countries for commercial development, including both old and new countries; weights and measures, currencies, tariffs, postal and telegraph arrangements, and social and political characteristics likely to affect trade; ports and harbors, light-houses and light-ships, coaling stations. Maps showing the districts producing the more important natural and manufactured commodities should be made use of.

Special maps, showing rivers, canals, railways, cables, steamship, caravan trade routes, and producing districts should be obtained.

It would be helpful if the students were required to draw a series of charts or maps, each of them illustrating some particular characteristic of the country under revision, and on the following lines, showing: (1) Contour of the land, lines of drainage, and particular localities of the river basins. (2) Distribution of mineral products (details can be obtained and filled in from the text-book). (3) Distribution of vegetable products. (4) Distribution of industries. (5) Canal, railway routes, and trade lines. (6) Steamship routes to nearest countries and trade centers, etc., until each characteristic has been so exhausted.

In order that the students may see and examine the real objects spoken of, it is recommended that a well-chosen museum for practical teaching be provided. Where a commodity is being dealt with, it would be well to show it not only in its natural state, but also in the various stages of manipulation to which it is subjected before the useful article is produced. When the exhibition of the object is only imperfect, pictures of the object, with its native surroundings, should be shown.

APPENDIX B.

CITY OF LIVERPOOL SCHOOL OF COMMERCE.

[Mr. Clarence G. Dyall.]

GEOGRAPHY.—*Commercial.*—General survey of the trade of the United Kingdom, with particular reference to Liverpool. The imports and exports of the United Kingdom, and the areas in which the imports are used and the exports manufactured. Causes determining trade and locality of manufacture. Geography of great commercial products: Cotton, wheat, petroleum, timber, tobacco, wool, etc.; chief countries of production of these articles and their condition; chief countries of consumption. Trade rivalry of other countries with the United Kingdom. Great trade routes and lines of communication, with particular reference to the cheap and rapid transport of wheat, cotton, petroleum, etc., from the place of production to that of consumption.